

## Claims

1. A capacitor dielectric comprising a material formed from a two-component plasma reaction in a substantially air-evacuated plasma chamber, a first component of the two-component plasma reaction comprising a non-carbon containing and non-oxygenated silicon donor, and a second component of the two-component plasma reaction comprising a non-silicon containing and non-oxygenated organic precursor.
2. The capacitor dielectric of claim 1 wherein the second component of the two-component plasma reaction is selected from the group consisting of alkanes, alkenes, alkynes, phenyls and aromatic hydrocarbons.
3. The capacitor dielectric of claim 1 wherein the second component of the two-component plasma reaction is selected from the group consisting of ethylene, methane, ethane and toluene.
4. The capacitor dielectric of claim 1 wherein the first component of the two-component plasma reaction is selected from the group consisting of monosilane, disilane and dichlorsilane.
5. The capacitor dielectric of claim 4 wherein the second component of the two-component plasma reaction is selected from the group consisting of ethylene, methane, ethane and toluene.
6. The capacitor dielectric of claim 1 wherein the capacitor dielectric is photo-oxidized by exposure to a radiated electromagnetic energy in the presence of oxygen to alter the dielectric constant of the capacitor dielectric subsequent to the formation of the capacitor dielectric.

7. A capacitor comprising:

a first conductor;

a dielectric formed on the first conductor from a two-component plasma reaction in a substantially air-evacuated plasma chamber, a first component of the two-component plasma reaction comprising a non-carbon containing and non-oxygenated silicon donor, and a second component of the two-component plasma reaction comprising a non-silicon containing and non-oxygenated organic precursor; and

a second conductor formed on the dielectric.

8. The capacitor of claim 7 wherein the second component of the two-component plasma reaction is selected from the group consisting of alkanes, alkenes, alkynes, phenyls and aromatic hydrocarbons.

9. The capacitor of claim 7 wherein the second component of the two-component plasma reaction is selected from the group consisting of ethylene, methane, ethane and toluene.

10. The capacitor of claim 7 wherein the first component of the two-component plasma reaction is selected from the group consisting of monosilane disilane and dichlorsilane.

11. The capacitor of claim 10 wherein the second component of the two-component plasma reaction is selected from the group consisting of ethylene, methane, ethane and toluene.

12. The capacitor of claim 7 wherein the dielectric is photo-oxidized by exposure to a radiated electromagnetic energy in the presence of oxygen to alter the dielectric constant of the dielectric subsequent to the formation of the dielectric.

13. The capacitor of claim 7 wherein the dielectric is photo-oxidized by exposure to a radiated electromagnetic energy in the presence of oxygen to alter the dielectric constant of the dielectric when the capacitor is in an electrically active circuit.

14. An electrical filter comprising:

a one or more capacitors, an at least one of the one or more capacitors comprising:

a first conductor;

a dielectric formed on the first conductor from a two-component plasma reaction

5 in a substantially air-evacuated plasma chamber, a first component of the two-component plasma reaction comprising a non-carbon containing and non-oxygenated silicon donor, and a second component of the two-component plasma reaction comprising a non-silicon containing and non-oxygenated organic precursor; and

a second conductor formed on the dielectric; and

10 a one or more inductors electrically connected to the one or more capacitors to form an electrical filter.

15 15. The electrical filter of claim 14 wherein an at least one of the one or more inductors comprises an on-chip spiral inductor.

20 16. A method of fabricating a capacitor dielectric comprising the step of forming the capacitor dielectric from a two-component plasma reaction in a substantially air-evacuated plasma chamber, a first component of the two-component plasma reaction comprising a non-carbon containing and non-oxygenated silicon donor, and a second component of the two-component plasma reaction comprising a non-silicon containing and non-oxygenated organic precursor.

25 17. The method of claim 16 further comprising the step of photo-oxidizing the capacitor dielectric by exposing the capacitor dielectric to radiated electromagnetic energy in the presence of oxygen subsequent to the two-component plasma reaction.

18. The method of claim 16 wherein the second component of the two-component plasma reaction is selected from the group consisting of alkanes, alkenes, alkynes, phenyls and aromatic hydrocarbons.

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